

In the Claims:

1. (canceled)
2. (canceled)
3. (canceled)
4. (canceled)
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17. (canceled)

18. (canceled)

19. (original) An apparatus for converting a radio frequency (RF) signal and its reference signal comprising

a signal source for providing a signal with a predetermined frequency;

a first multiplier for combining a signal responsive to the RF signal and another signal responsive to the signal generated by the signal source, and providing at least one output signal;

a second multiplier for combining a signal responsive to the reference signal and another signal responsive to the output signal from the first multiplier, and providing an output signal;

a first 90 degree phase shifter for receiving a signal responsive to the reference signal,  
and generating an output signal;  
a third multiplier for combining a signal responsive to the output signal from the first  
multiplier and a signal responsive to the output signal from the first 90 degree  
phase shifter, and providing an output signal;  
a second 90 degree phase shifter for receiving a signal responsive to a signal selected  
from the group consisting of the output signal from the second multiplier and the  
output signal from the third multiplier, and providing an output signal; and  
an adder for combining a signal responsive to the output signal from the second  
multiplier and another signal responsive to the output signal from the third  
multiplier, and providing a new signal.

20. (original) An apparatus as described in claim 19 wherein the signal source is a crystal-stabilized oscillator.

21. (original) An apparatus as described in claim 19 further comprising at least one power splitter.

22. (original) An apparatus as described in claim 19 further comprising at least one signal amplifier.

23. (original) An apparatus as described in claim 19 further comprising at least one automatic gaining circuit.

24. (original) An apparatus as described in claim 19 further comprising a device for converting the RF signal and its reference signal to an intermediate frequency.

25. (previously presented): An apparatus as described in claim 19 further comprising a device for converting the new signal to a signal selected from the group consisting of an audio, video, digital and analog signal.

26. (original) An apparatus for converting a radio frequency (RF) signal and its reference signal comprising

a signal source for providing a signal with a predetermined frequency;

a first multiplier for combining a signal responsive to the RF signal and another signal responsive to the signal generated by the signal source, and providing at least one output signal;

a second multiplier for combining a signal responsive to the reference signal and another signal responsive to the output signal from the first multiplier, and providing an output signal;

a first 90 degree phase shifter for receiving a signal responsive to the output signal from the first multiplier, and generating an output signal;

a third multiplier for combining a signal responsive to the reference signal and another signal responsive to the output signal from the first 90 degree phase shifter, and providing an output signal;

a second 90 degree phase shifter for receiving a signal responsive to a signal selected from the group consisting of the output signal from the second multiplier and the output signal from the third multiplier, and providing an output signal; and an adder for combining a signal responsive to the output signal from the second multiplier and another signal responsive to the output signal from the third multiplier, and providing a new signal.

27. (original) An apparatus as described in claim 26 wherein the signal source is a crystal-stabilized oscillator.

28. (original) An apparatus as described in claim 26 further comprising at least one power splitter.

29. (original) An apparatus as described in claim 26 further comprising at least one signal amplifier.

30. (original) An apparatus as described in claim 26 further comprising at least one automatic gaining circuit.

31. (original) An apparatus as described in claim 26 further comprising an apparatus for converting the RF signal and its reference signal to an intermediate frequency.

32. (previously presented): An apparatus as described in claim 26 further comprising a device for converting the new signal to a signal selected from the group consisting of an audio, video, digital and analog signal.

33. (canceled)

34. (canceled)